AMENDMENT TO THE CLAIMS

Please amend the claims as follows.

1.   (Currently Amended) A computer-implemented method for determining a production plan comprising:

allocating, by a computing device, resources to different ~~demand priorities~~ prioritized demands by iteratively solving mathematical linear programs;

optimizing, by said computing device, each mathematical linear program according to one of a plurality of sets of ~~demand priorities~~ prioritized demands wherein each set contains a plurality of ~~demand priorities~~ prioritized demands;

determining, by said computing device, each iterative solution using results from a previous mathematical linear program solution~~, and~~;

outputting, by said computing device, said production plan based on optimizing said each mathematical linear program and determining each iterative solution,

independently determining backorder costs penalties for each set of prioritized demands using said computing device; and

allocating, by each successive linear programming model, a range of said backorder costs within a priority group to which resources are currently being allocated.

2.   (Currently Amended) The method of claim 1, wherein said ~~demand priorities~~ prioritized demands are hierarchical and comprises two or more levels of hierarchy.

3.   (Cancelled.).

4.   (Previously Presented) The method of claim 1, wherein said mathematical linear programs solved in each iteration use the solution to the previous mathematical linear program as a starting solution.

5.   (Original) The method of claim 1, further comprising adding constraints to said mathematical linear programs at each iteration to ensure that solutions to subsequent iterations are consistent with previous solutions.

6.   (Original) The method of claim 1, wherein said method uses a different mathematical linear program for each iteration.

7.   (Currently Amended) The method of claim 1, wherein said allocating process solves said mathematical linear programs for higher ~~demand priorities~~ prioritized demands before solving for lower priorities.

8.   (Currently Amended) A computer-implemented method of allocating resources to a hierarchy of ~~demand priorities~~ prioritized demands in a linear programming production planning system for determining a production plan, said method comprising:

aggregating, by said computing device, said ~~demand priorities~~ prioritized demands into different priority groups;

allocating, by said computing device, said resources to the highest priority group of

~~demand priorities~~ prioritized demands using a first linear programming model;

allocating, by said computing device, remaining resources to the next highest priority

group of ~~demand priorities~~ prioritized demands using a second linear programming model,

wherein said second linear programming model uses results from said first linear programming

model;

repeating said process of allocating remaining resources, by said computing device, to the

remaining groups of ~~demand priorities~~ prioritized demands in order of priority; and

outputting, by said computing device, a production plan based said processes of

allocating resources,

wherein during said allocating processes, each linear programming model allocates a

range of backorder costs within the priority group to which the resources are currently being

allocated.

9.   (Original) The method in claim 8, wherein when repeating said process of

allocating remaining resources, said method uses a different linear programming model for each

iteration.

10.   (Currently Amended) The method in claim 9, wherein each different linear

programming model uses as a starting point a program solution of the previous linear

programming model.

11.   (Original) The method in claim 8, wherein during said allocating processes, each

linear programming model fixes variables associated with priority groups that have a lower

priority than the priority group to which the resources are currently being allocated.

12.   (Cancelled.)

13.   (Original) The method in claim 8, further comprising dividing said priority groups into different sub-priority tiers.

14.   (Previously Presented) The method in claim 13, wherein said sub-priority tiers can be processed simultaneously.

15.   (Currently Amended) A computer-implemented method of allocating resources to a hierarchy of ~~demand priorities~~ <u>prioritized demands</u> in a linear programming production planning system for determining a production plan, said method comprising:

aggregating, by said computing device, said ~~demand priorities~~ <u>prioritized demands</u> into different priority groups;

allocating, by said computing device, said resources to the highest priority group of ~~demand priorities~~ <u>prioritized demands</u> using a first linear programming model;

allocating, by said computing device, remaining resources to the next highest priority group of ~~demand priorities~~ <u>prioritized demands</u> using a second linear programming model, wherein said second linear programming model uses results from said first linear programming model;

repeating said process of allocating remaining resources, by said computing device, to the

remaining groups of ~~demand priorities~~ <u>prioritized demands</u> in order of priority using a different linear programming model for each iteration; and

outputting, by said computing device, a production plan based said processes of allocating resources<u>,</u>

<u>wherein during said allocating processes, each linear programming model allocates a range of backorder costs within the priority group to which the resources are currently being allocated.</u>

16.   (Currently Amended) The method in claim 15, wherein each different linear programming model uses <u>as a starting point</u> a program solution of the previous linear programming model.

17.   (Original) The method in claim 15, wherein during said allocating processes, each linear programming model fixes variables associated with priority groups that have a lower priority than priority group to which the resources are currently being allocated.

18.   (Cancelled.)

19.   (Original) The method in claim 15, further comprising dividing said priority groups into different sub-priority tiers.

20.   (Previously Presented) The method in claim 19, wherein said sub-priority tiers can be processed simultaneously.

21.   (Currently Amended) A program storage device readable by machine, tangibly

embodying a program of instructions executable by the machine to perform a method of

allocating resources to a hierarchy of ~~demand priorities~~ <u>prioritized demands</u> in a linear

programming production planning system for determining a production plan, said method

comprising:

aggregating said ~~demand priorities~~ <u>prioritized demands</u> into different priority groups;

allocating said resources to the highest priority group of ~~demand priorities~~ <u>prioritized</u>

<u>demands</u> using a first linear programming model;

allocating remaining resources to the next highest priority group of ~~demand priorities~~

<u>prioritized demands</u> using a second linear programming model, wherein said second linear

programming model uses results from said first linear programming model; and

repeating said process of allocating remaining resources to the remaining groups of

~~demand priorities~~ <u>prioritized demands</u> in order of priority; and

outputting, by said computing device, a production plan based said processes of

allocating resources<u>.</u>

<u>wherein during said allocating processes, each linear programming model allocates a</u>

<u>range of backorder costs within the priority group to which the resources are currently being</u>

<u>allocated</u>.

22.   (Original) The program storage device in claim 21, wherein when repeating said

process of allocating remaining resources, said method uses a different linear programming

model for each iteration.

23.   (Currently Amended) The program storage device in claim 22, wherein each different linear programming model uses <u>as a starting point</u> a program solution of the previous linear programming model.

24.   (Original) The program storage device in claim 21, wherein during said allocating processes, each linear programming model fixes variables associated with priority groups that have a lower priority than the priority group to which the resources are currently being allocated.

25.   (Cancelled.)

26.   (Original) The program storage device in claim 21, wherein said method further comprises dividing said priority groups into different sub-priority tiers.

27.   (Previously Presented) The program storage device in claim 26, wherein said sub-priority tiers can be processed simultaneously.